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12

# EUROPEAN PATENT APPLICATION

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54 Circuits for preventing breakdown of low-voltage device inputs during high voltage antifuse programming.

57) A circuit for isolating a first low-voltage circuit node from a second circuit node which carries high programming voltages during programming of user-programmable interconnect elements includes a novel two input NAND gate having one input structure configured from high voltage devices connected to the second circuit node. The other input of the NAND gate is a control input for the isolation device and is connected to a low-voltage logic signal which is high when the signal from the high programming voltage node is to be passed through to the low-voltage node and low when the low-voltage node is to be isolated from the high programming voltage node. The output of the NAND gate is connected to the first low-voltage circuit node.

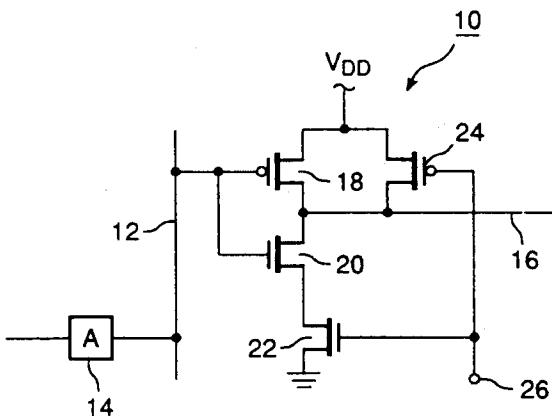


FIG. 2



EUROPEAN SEARCH REPORT

EP 92 30 1724

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	IEEE INTERNATIONAL SOLID STATE CIRCUITS CONFERENCE. vol. 34, February 1991, NEW YORK US pages 262 - 263 OHTSUKA ET AL 'A 62ns 16Mb CMOS EPROM with address transition detection technique' * page 262, left column, line 24 - line 51; figure 1 *	1-4	G11C17/18
A	IBM TECHNICAL DISCLOSURE BULLETIN. vol. 26, no. 8, January 1984, NEW YORK US pages 4174 - 4176 CRANFORD ET AL 'On-chip control circuit for high positive and negative voltages' * the whole document *	1-4	
A	EP-A-0 350 461 (SGS-THOMSON MICROELECTRONICS SRL) * column 3, line 59 - column 5, line 45; figures 4,5 *	1-4	
A	US-A-4 689 504 (RAGHUNATHAN ET AL) * column 2, line 5 - column 3, line 40; figure *	1-4	G11C H03K
<p>The present search report has been drawn up for all claims</p>			
Place of search	Date of completion of the search	Examiner	
THE HAGUE	29 APRIL 1993	CUMMINGS A.	
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			